

**Problem 1.** Alfredo rolls a fair, six-sided die. What is the probability that he rolls an odd number?

**Problem 2.** The expression  $(2x - 3) \times (5x + 2)$  can be written as  $ax^2 + bx + c$ . Find  $a + b + c$ .

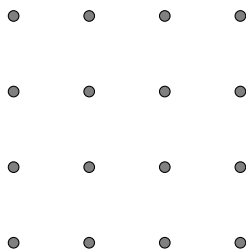
**Problem 3.** Simplify the fraction  $\frac{\frac{12}{33}}{\frac{24}{35}}$ .

**Problem 4.** How many factors does  $2^4 \cdot 3^2 \cdot 4^3$  have?

**Problem 5.** Triangle  $ABC$  has  $AB = 25$  and  $BC = 7$ . If  $\angle C = 90^\circ$ , find the length of  $AC$ .

**Problem 6.** Let  $f(x) = 7x - \sqrt{x} + 3$ . Compute  $f(4)$ .

**Problem 7.** How many squares have all 4 vertices in the array of 16 points below?



**Problem 8.** Express  $0.\overline{47} = 0.47474747\dots$  as a simplified fraction.

**Problem 9.** Compute  $25 \times 316484$ .

**Problem 10.** What is the largest prime factor of  $25^2 - 14^2$ ?

**Problem 11.** Three consecutive odd integers add up to 27. If I subtract 1 from each of these numbers and multiply them all by 6, what is their new sum?

**Problem 12.** Rectangle A has side lengths 5 and 4, and Rectangle B has side lengths 7 and 2. What percentage of Rectangle A's area is Rectangle B's area?